February 1988

Articles

The Importance of Real-Fluid Behavior and Nonisentropic Effects in Modeling Decompression Characteristics of Pipeline Fluids for Application in Ductile Fracture Propagation Analysis — D. J. Picard and P. R. Bishnoi ... 3

Ventilation of a Dead-End Duct Having a Porous Barrier — J. T. Ryan and Wayne H. Griffin 13

Gas Holdup and Gas Entrainment of a Plunging Water Jet with a Constant Entrainment Guide — Kazumori Funatsu, Yung-Chien Hsu and Takemi Kamogawa 19

Dispersing Behaviour of Droplets in Suspension Polymerization of Styrene in a Loop Reactor — Masato Tanaka and Eiji O'shima 29

Particle Transport in Fouling Caused by Kaolin-Water Suspensions on Copper Tubes — L. F. Melo and J. D. Pinheiro 36

Influence of Operating Conditions on Particulate Fouling — H. Müller-Steinhagen, F. Reif, N. Epstein and A. P. Watkinson 42

The Deposition of Haematite Particles from Flowing Water — R. Williamson, I. Newson and T. R. Bott..... 51

Initial Fouling of Nontoxic Coatings in Fresh, Brackish, and Sea Water — A. E. Meyer, R. E. Baier and R. W. King 55

Surface Phenomena and Hydrodynamic Effects on the Deposition of *Pseudomonas fluorescens* — M. M. Pinheiro, L. F. Melo, T. R. Bott, J. D. Pinheiro and L. Leitao 63

Mixed Convection Heat Transfer in Porous Media in the Non-Darcy Regime — Rafiqul M. Islam and K. Nandakumar 68

Mass Transfer at Erosion-Corrosion Roughened Surfaces — J. Postlethwaite and U. Lotz..... 75

Oxygen Transfer into Newtonian and Non-Newtonian Fluids in Mechanically Agitated Vessels — Ali Ogut and Randolph T. Hatch..... 79

Cinétique de dégagement des matières volatiles lors de la pyrolyse d'électrodes de carbone industrielles — François Tremblay and André Charette 86

Toxic Effects of Inhibitors in Biological Wastewater Treatment Processes — R. D. Tyagi and D. Couillard.... 97

Pretreatment of Wood Flour Slurries Prior to Liquefaction — C. Vanesse, J. P. Lemonnier, D. Eugène, E. Chornet and R. P. Overend 107

Liquefaction of Lignocellulosics in Model Solvents: Creosote Oil and Ethylene Glycol — C. Vanesse, E. Chornet and R. P. Overend 112

A Scanning Electron Microscope Study of Structural Changes During the Liquefaction of Popular Sticks by Rapid Aqueous Thermolysis — David G. B. Boocock and L. Kosiak . 121

Measurement of Heat of Mixing for Ammonium Chloride + Ammonia System at 25°C — Hideki Yamamoto, Seiji Sanga and Jungi Tokunaga 127

Vapor-Liquid Equilibrium, Excess Gibbs Energy and Excess Enthalpy of 1,3 Dioxolane-Methylcyclohexane at T = 313.15 K — Carlo Castellari, Romolo Francesconi and Fabio Comelli 131

Liquid-Liquid Equilibria of the System Water + Acetic Acid + Methyl Propyl Ketone — A. Blanco, J. M. Correa, A. Arce and A. Correa 136

Suboptimal Control Through Model Reduction — Y. P. Gupta 141

Notes

Frictional Loss in Multiplate Bubble Columns — B. H. Chen and H. Wakao..... 145

Drop Size Distribution in a Liquid-Liquid Spray Column via a Photographic Technique — F. Lin and J. D. Ford . 150

The Influence of Fluid Elasticity on Wall Effects for Creeping Sphere Motion in Cylindrical Tubes — R. P. Chhabra and P. H. T. Uhlherr..... 154

Gas-Solid Contacting in a Two-Dimensional Fluidized Bed Containing Mobile Internals: Non-Reactive Tracer Studies — E. A. M. Gbordzoe, H. Littman and M. A. Bergougnou 158

Attrition of Spherical Electrode Carbon Particles During Batch Fluidized Combustion — P. K. Halder, P. Salatino and U. Arena..... 163

Optimal Design on an Economic Basis for Continuous Stirred Tank Reactors in Series Using Michaelis–Menten Kinetics for Ping-Pong Reactions — F. Xavier Malcata..... 168

Book Reviews 173

Letters to Editor..... 175

Errata..... 176

April 1988

Articles

Boundary Element Prediction of the Free Surface Shape between Two Particle Plugs in a Horizontal Pneumatic Transport Pipeline — K. Konrad..... 177

Hydrodynamics and Liquid Phase Axial Mixing in Orifice Pipe Reactor — A. M. Lali, A. S. Khare, J. B. Joshi, A. C. Eapen, S. M. Rao, V. N. Yelgaonkar and R. L. Ajmera 182

Mass Transfer Characteristics in a Gas–Liquid Reciprocating Plate Column. I. Liquid Phase Volumetric Mass Transfer Coefficient — Dejan Skala and Vlada Veljkovic..... 192

Mass Transfer Characteristics in a Gas–Liquid Reciprocating Plate Column. II. Interfacial Area — Vlada Veljkovic and Dejan Skala..... 200

Characteristics of a Countercurrent Reciprocating Plate Bubble Column. I. Holdup, Pressure Drop and Bubble Diameter — N. V. Rama Rao and M. H. I. Baird... 211

Characteristics of a Countercurrent Reciprocating Plate Bubble Column. II. Axial Mixing and Mass Transfer — M. H. I. Baird and N. V. Rama Rao..... 222

Dispersed Phase Holdup and Drop Size Distribution in Pulsed Plate Columns — A. Prabhakar, G. Sriniketan and Y. B. G. Varma..... 232

Determination and Correlation of Axial-Mixing Parameters in an Agitated Liquid–Liquid Extraction Column — Ladislav Steiner, Anil Kumar and Stanley Hartland... 241

On the Modelling of Multicomponent Acid Extraction with Long-Chain Aliphatic Amines — Stig Stenstrom and Stig Wingefors 248

On the Examination of Recycle on Heat (and Mass) Transfer in Concentric Tubes — Ho-Ming Yeh, Shau-Wei Tsai and Mean-Chu Hsiey..... 258

Theoretical Evaluation of the Performance Characteristics of a Combined Hemodialysis/Hemoperfusion System — I. Single Pass Flow — Chau-Jen Lee and Yen-Lin Chang 263

Gas Filtration in Granular Moving Beds — An Experimental Study — J. Tsubaki and Chi Tien..... 271

Effect of Zeta Potentials of Oil Droplets and Bubbles on Flotation of Oil-in-Water Mixtures — Kenji Okada, Yasuharu Akagi and Naoya Yoshioka..... 276

Modified Oil Agglomeration Process for Coal Beneficiation. I. Mineral Matter Liberation by Fine Grinding with the Szego Mill — Oliver Bajor and Olev Trass..... 282

Modified Oil Agglomeration Process for Coal Beneficiation. II. Simultaneous Grinding and Oil Agglomeration — Olev Trass and Oliver Bajor..... 286

An Accelerated Successive Substitution Method for Single Stage Flash Calculations — Anup K. Gupta, P. R. Bishnoi and N. Kalogerakis..... 291

Moment Analysis of Nonlinear Systems: A Kinetic Study — Bing Joe Hwang and Tse-Chuan Chou..... 297

The Importance of Temperature Rise Time in Pyrolysis Kinetic Studies — Ashutosh Rastogi, William Y. Svrcek and Leo A. Behie..... 303

CO_2 Gasification of Wood Charcoals Derived from Vacuum and Atmospheric Pyrolysis — P. Plante, C. Roy and E. Chornet 307
Hydrocracking of *n*-Heptane with a $NiO–MoO_3$/HYUS Zeolite as Catalyst. Kinetic Study — M. I. Vazquez, A. Escardino and A. Aucejo 313
High Pressure Phase Equilibria in the Carbon Dioxide — *n*-Hexadecane and Carbon Dioxide — Water Systems — Rupert D'Souza, Jennie R. Patrick and Amyn S. Teja 319
A Finite Element Model of the Ventilation Pattern Inside an Industrial Building: Non-Isothermal Case — P. A. Tanguy and M. Dupuis 324

Notes
Gas Holdup in a Two-Phase Vertical Tubular Reactor at High Pressure — T. J. W. De Bruijn, J. D. Chase and W. H. Dawson 330
Conjugate Heat Transfer in Turbulent Falling Liquid Films — R. S. R. Gorla and T. Maloney 334
Kinetic Study of Isotopic Exchange Reaction Between Hydrogen and Water Vapor Over a Pt/SDBC Hydrophobic Catalyst Sheet — Koei Kawakami, Minoru Isobe, Kanya Horiki and Koichiro Kusunoki 338
Contents Page from *Chemical Engineering Research and Design* 342
Erratum 342
Kinetics of the Methanation of Carbon Dioxide over a Supported $Ni–La_2O_3$ Catalyst — Takami Kai, Takeshige Takahashi and Shintaro Furusaki 343

Book Reviews 348
Summary of Policy on the Use of SI Units 351

June 1988

Articles
Flow Pattern of the Phases and Liquid Saturation in Gas-Liquid Concurrent Downflow Through Packed Beds — P. S. T. Sai and Y. B. G. Varma 353
Laminar Mixed Convection in the Entrance Region of Shrouded Arrays of Heated Rectangular Blocks — Jenn-Nan Lin, Chen-Shyong Yen and Fu-Chu Chou 361
Heat Transfer Modelling of Sieve Trays — D. A. Spagnolo, E. L. Plaice, H. J. Neuburg and K. T. Chuang 367
Performance of Packings for Water Distillation — K. T. Chuang and A. I. Miller 377
Flotation Kinetics for Titanium, Zirconium and Bitumen Recovery from Oilsand Tailings — M. T. Ityokumbul, W. Bulani and N. Kosaric 382
Decontamination of Petroleum Sludges by Hot Water Extraction — Francis T. Tran, Denis Couillard and Denis Rouleau 386
The Effect of Surfactants on Peat Dewatering — D. G. Cooper, E. R. A. Eccles and J. D. Sheppard 393
Membrane Formation Through the Phase-Inversion of Poly(vinylidene)/Dimethylformamide Solutions. Experimental and Theoretical Study of Evaporative Flux — R. Francesconi and C. Castellari 398
Kinetics of Reactions Involved in Pyrolysis of Cellulose. I. The Three Reaction Model — Ravindra K. Agrawal 403
Kinetics of Reactions Involved in Pyrolysis of Cellulose. II. The Modified Kilzer-Broido Model — Ravindra K. Agrawal 413
A Gas-Solid Reaction Model — Variable Temperature, Pressure and Structural Parameters — M. A. Hastaoglu and M. S. Hassam 419
Regeneration of Cracking Catalyst Influence of the Homogeneous CO Postcombustion Reaction — K. Morley and H. I. de Lasa 428
Dehydration of 1-Phenylethanol over Solid Acidic Catalysts — Takeshige Takahashi, Takami Kai and Masashi Tashiro 433
The Plasma Production of Ultrafine Silica Particles — I. Gans and W. H. Gauvin 438
The Effects of Ferrous Iron, Dissolved Oxygen, and Inert Solids Concentrations on the Growth of Thiobacillus Ferrooxidans — M. S. Liu, R. M. R. Branion and D. W. Duncan 445
Prediction and Experimental Determination of Vapour-Liquid Equilibria for Benzene + Cyclohexane + 1-Butanol Mixtures at 101.325 kPa — A. Arce, A. Blanco, A. Correa and J. Tojo 452
Heats of Mixing of Amine/Alkane and Amine/Alcohol Systems at 288.15 and 308.15 K. Correlation and Prediction with AGSM and with the Quasi-Chemical Theory — J. F. Chamblain and J. H. Vera 458
Solubilities of Propene, Butane, Isobutane and Isobutene Gases in n-Octane, Chlorobenzene and n-Butanol Solvents — W. Hayduk, H. Asatani and Y. Miyano 466
Viscosities of Binary Liquid Mixtures of Cyclohexanone with Alkanes, Benzene, Toluene and Tetrachloromethane at 298.15K — K. Purna Chandra Rao and K. S. Reddy 474
Use of Nonlinear Transformations and a Self-tuning Regulator to Develop an Algorithm for Catalytic Reactor Temperature Control — D. Onderwater, J. F. MacGregor and J. D. Wright 478
Self-Tuning Control of Fischer-Tropsch Synthesis in a Tube-Wall Reactor — Sohrab Rohani, D. W. Quail and N. N. Bakhshi 485

Notes
Prandtl Number Effect on Combined Free and Forced Laminar Convection in the Thermal Entrance Region of a Horizontal Tube — F. C. Chou and G. J. Hwang .. 493
Effect of Gas Sparging on the Rate of Mass Transfer at Fixed Beds of Horizontally Stacked Screens — F. A. Katkout, A. A. Zatout, H. A. Farag and G. H. Sedahmed 497
Adsorption of 1-Butanethiol from Kerosene Oil on Red Mud — A. P. Singh, P. C. Singh, K. K. Panday and V. N. Singh 501
Analysis of Deactivation Disguised Kinetics in Transport Reactors by Periodic Operation — S. Sivakumar, M. Chidambaram and H. S. Shankar 505
A Model for Microencapsulation in Polyurea Shell by Means of Interfacial Polycondensation — Mayur Sirdesai and Kartic C. Khilar 509
Economic Aspects of Wood-Burning Installations — M. Fels, D. F. Cooper and M. N. Patterson 514
Solubility of H_2S and CO_2 in Sulfolane — B. E. Roberts and A. E. Mather 519
Gamma-Ray Method for Measuring Liquid Expansion Coefficient at High Temperatures and Pressures — D. D. S. Liu, D. J. Patmore, T. S. Yuyitung, J. J. Lipsett and K. Chapman 526

Book Reviews 526

August 1988

Articles
Generalized Solutions for a Dead-end Duct Having a Permeable Barrier — J. T. Ryan and Wayne H. Griffin ... 529
Displacement of Bitumen from Reconstituted Oil Sands by Aqueous Solutions — J. L. Margeson, V. Hornof, G. H. Neale and the late D. K. Faurschou 536
A General Correlation for Purely Viscous Non-Newtonian Fluids Flowing in Ducts of Arbitrary Cross-Section — K. C. Tam and C. Tiu 542
Flow and Heat Transfer Characteristics of Structural Viscosity Fluids — R. E. Gaidos, R. Darby and G. Wickern 550
Optimal Design of a Heat Exchanger Undergoing Reaction Fouling — P. J. Fryer, P. J. Hobin and S. P. Mawer 558

End Wall Effects on Thermal Stratification and Heat Transfer in a Vertical Enclosure with Offset Partitions — R. Jetli and S. Acharya 563
Particle–Liquid Mass Transfer in Three Phase Sparged Reactor — S. V. Jadhav and V. G. Pangarkar 572
A Method for the Design of Flexible Distillation Sequences — R. M. Wagler and P. L. Douglas 579
Strategies for Solving The Chemical Equilibrium Problem and an Efficient Microcomputer—Based Algorithm — William R. Smith and R. W. Missen 591
Gas Absorption with Exothermic Bimolecular Reaction in a Thin Liquid Film: Fast Reactions — A. Bhattacharya, R. V. Gholap and R. V. Chaudhari 599
Dynamic Analysis of Changes in Diffusion and Sorption Parameters in the Reaction of SO_2 with Activated Soda Ash — Gülsen Dogu, Aliye Keskin and Timur Dogu 605
The Kinetics of the Oxidation of Propylene Over a Bismuth Molybdate Catalyst — H. S. Tan, J. Downie and D. W. Bacon 611
Optimal Temperature Policies for Catalytic Transport Reactors under Periodic Operation — S. Sivakumar, M. Chidambaram and H. S. Shankar 619
On-Line Estimation of Microbial Specific Growth-Rates: An Illustrative Case Study — D. Dochain and A. Pauss 626
The Development of a Mini-Plant Chlorinator for Ferric Chloride Leach Processes — K. G. Tan and P. L. Bedard 632
Reactions of Cyclopentane on HY Zeolite — J. Abbot and B. W. Wojciechowski 637
Isobaric Vapor–Liquid Equilibrium and Liquid–Phase Enthalpy of Mixing Data for the Binary Mixtures of *m*- or *p*-Xylene with Cyclohexanol — Fabio Comelli, Romolo Francesconi and Antonio Arcelli 644
Viscosity of n-Alcohol Binary Mixtures — M. J. Orts, P. Medina, A. Aucejo and M. C. Burguet 651
Properties of Cold Lake Bitumen Saturated with Pure Gases and Gas Mixtures — Anil K. Mehrotra and William Y. Svrcek 656
Correlation and Prediction of Gas Solubility in Cold Lake Bitumen — Anil K. Mehrotra and William Y. Svrcek 666
Application of Different Criteria for Uniqueness to the Tubular Reaction Problem — H. J. Viljoen and N. F. J. van Rensburg 671

Notes

Mixing and Segregation in a Liquid Fluidized Bed of Particles with Different Size and Density — B. K. Dutta, Suman Bhattacharya, S. K. Chaudhury and B. Barman 676
Performance of a Hydro-filter — Mass Transfer Coefficient and Gas Liquid Interfacial Area — S. Uchida, M. Sumiyama and H. Kamo 681
Ethylene Recovery From Low Grade Gas Stream by Adsorption on Zeolites and Controlled Desorption — Raymond Le Van Mao and Gerald P. McLaughlin 686
A General Solution for the Transient Response of Heterogenous Continuous–Flow Stirred Reactors — Ravindra Datta 691
The Effects of Catalyst Surface Heterogeneity on the Fischer–Tropsch Synthesis — N. M. Rice, C. C. Hsu and B. W. Wojciechowski 694
Calculation of Some Thermodynamic Properties of Gaseous Water by Means of BWR Equation of State — D. K. Grozdanic, B. D. Djordjevic and A. Z. Tasic 697
An Improvement on the Quraishi–Fahidy Method of Dimensional Analysis — J. J. J. Chen 701

Book Reviews 703
Contents Page from Chemical Engineering Research and Design 704

October 1988

Articles

Correlations for Wall and Particle Shape Effects on Fixed Bed Bulk Voidage — Anthony G. Dixon 705
Rheological Properties of Polymer-added Lubricating Oils — A. Derdouri, A. Ait-Kadi and P. J. Carreau 709
The Entry Length for Slurries in Horizontal Pipeline Flow — J. M. Colwell and C. A. Shook 714
Dispersive-force Modelling of Turbulent Suspension in Heterogeneous Slurry Flow — K. C. Wilson and F. J. Pugh 721
Flocculation of Kaolin Suspension with Cationic Polymer — Hiroyuki Kage, Yoshizo Matsuno and Ko Higashitani 728
Jet Penetration and Pressure Drops in Water Spouted Beds of Fine Particles — M. H. Morgan, III, H. Littman and B. Sastri 735
Pressure Drop Through Multiorifice Gas Distributors in Fluidized Bed Columns — C. L. Briens, A. K. Tyagi and M. A. Bergougnou 740
Study of the Transport Disengaging Height — T. Baron, C. L. Briens and M. A. Bergougnou 749
Role of the Contact Points Between Particles on the Reactivity of Solids — Yu-Jun Hao and Tatsuo Tanaka ... 761
Analysis of Mass and Energy Balance Equations in Gas–Solid Reactions — M. N. Oğuztöreli, A. Chambers and B. Özüm 767
Tube–Wall Reactor Modelling for Multiple Reaction Networks with Non-Linear Kinetics and Volume Change — S. K. Goyal, M. N. Esmail and N. N. Bakhshi 776
Reduction Kinetics of Fe(III)NTA Chelate by Sulfite — E. Sada, H. Kumazawa, Y. Yoshikawa and K. J. Rudziński 787
The Inverse Gaussian Density Function as Applied to the Ziegler-Natta Catalysis in the Oligomerization of Ethylene to Linear Alpha–Olefins — D. V. Favis 792
Kinetics of Methyl Tertiary Butyl Ether Synthesis Catalyzed by Ion Exchange Resin — Adnam M. Al-Jarallah, Mohammed A. B. Siddiqui and A. K. K. Lee 802
Effect of Benzene and Thiophene on Rate of Coke Formation During Naphtha Pyrolysis — Durjyogharan Sahu and Deepak Kunzru 808
Kinetics and Selectivity of Reactions of 1-Alkenes on HY Zeolite: The Influence of Chain Length — J. Abbot and B. W. Wojciechowski 817
Catalytic Reactions of *n*-hexane on HY Zeolite — J. Abbot and B. W. Wojciechowski 825
Studies of the Fischer–Tropsch Synthesis on a Cobalt Catalyst I. Evaluation of Product Distribution Parameters from Experimental Data — B. Sarup and B. W. Wojciechowski 831
Preparation and Characterization of Pt/Silicalite Catalysts with High Pt Loadings — H. A. Rangwala, J. A. Szymura, S. E. Wanke and F. D. Otto 843
Dissolved Oxygen Removal by Combination with Hydrogen Using Wetproofed Catalysts — S. Suppiah, K. J. Kutchcoskie, P. V. Balakrishnan and K. T. Chuang 849
Coal Surface Conditioning for Electrostatic Separation — G. Zhou and J. D. Brown 858
Process Design for Offshore Oil and Gas Production in Cold Ocean Environment — D.C. Sen 864
V-L-S Multiphase Equilibrium in Bitumen–Diluent Systems — Neil E. James and Anil K. Mehrotra 870

Book Reviews 879
Content Page from Chemical Engineering Research and Design 880

December 1988

Review

Coupled Optimization and Evaluation of Phase Equilibria and Thermodynamic Properties of the Benzene-cyclohexane System — J. Sangster, P. K. Talley, C. W. Bale and A. D. Pelton 881

Articles

Hydrodynamics of Liquid-Liquid Dispersion in Ejectors and Vertical Two Phase Flow — Dibyendu Mukherjee, Manindra N. Biswas and Arun K. Mitra 896

Study of the Hydrodynamics within a Draft Tube Spouted Bed System — Mani C. Matthew, Morris H. Morgan, III and Howard Littman 908

Solids Circulation in a Spout-Fluid Bed with Draft Tube — Franco Berruti, James R. Muir and Leo A. Behie ... 919

Effects of Anisotropic Scattering of Radiation in Laminar Forced Convection in a Parallel-Plate Duct — J. R. Tsai and M. N. Ozisik 924

Enhancement of SO_2 Sorption on Lime by Structure Modifiers — F. Shadman and P. E. Dombek 930

Axial Dispersion Models for Displacement Washing of Packed Beds of Wood Pulp Fibres — N. A. Poirier, R. H. Crotogino and W. J. M. Douglas 936

The Effect of Charged Additives and Heat Pretreatment on the Dewatering of Fuel-Grade Peat — D. G. Cooper, E. R. A. Eccles and J. D. Sheppard 945

Hydrogen Production by the Catalytic Steam Reforming of Methanol. Part 3: Kinetics of Methanol Decomposition Using C18HC Catalyst — J. C. Amphlett, R. F. Mann and R. D. Weir 950

Modeling of Naphtha Pyrolysis in Swaged Coils — Ayalur K. Parameswaran, Vimal K. Sharma and D. Kunzru 957

Vapor Liquid Equilibrium Data for Alcohol *n*-Amylamine Binary Systems at 333.15 K. Reduction of the Experimental Data by a Novel Model-Free Method — J. A. Abusleme and J. H. Vera 964

Equilibrium Characteristics for the Extraction of Cobalt and Nickel into di(2-ethylhexyl)) Phosphoric Acid — J. A. Golding and C. D. Barclay 970

Prediction of the Thermal Conductivity of Liquids and Liquid Mixtures Including Crude Oil Fractions — Amyn S. Teja and Gilliane Tardieu 980

The Effect of Steam Temperature on the Economics of a Cogeneration Power Plant — R. W. Ham, P. L. Douglas and G. Fulford 987

Notes

Gas Holdup in a Bubble Column With Immiscible Liquid Mixtures — N. Bandyopadhyay, P. Ray and B. K. Dutta 995

On the Effect of Particle Size on Heat Transfer in Vertical Upflow of Gas-Solids Suspension — S. Sivakumar, M. Chidambaram and H. S. Shankar 1000

Comparison of Indices for the Scaling and Corrosion Tendency of Water — H. M. Müller-Steinhagen and C. A. Branch 1005

On Boundary Conditions to the Film Model of Mass Transfer in Chemical Absorption — Maciej Starzak and Stanislaw Ledakowicz 1008

Experimental Study of a New Mechanically Resistant Adsorbent — K. Iovtchev, L. Nikolov and D. Elenkov.... 1013

An Agitated Bubble Column for Use in Potash Flotation — W. H. Karolat and G. A. Hill 1017

Viscosity and Surface Tension of *P*-Xylene-Ethylacetate Liquid Mixtures — Jyoti Narayan, R. K. Wanchoo, G. K. Raina and G. A. Wani 1021

The Use of the Simplex Method to Characterize Dry Cellulose Acetate Membranes for Gas Separations — A.-Y. Tremblay, A. Fouda, A. Liu, T. Matsuura and S. Sourirajan 1027

On the Numerical Solution of Differential Algebraic Equations — Javier Audry-Sanchez 1031

Book Reviews 1036

Index of Papers 1039

Contents Page from Chemical Engineering Research and Design 1042

Index of Authors 1043

Subject Index 1048

Reviewers 1052

Chemical Engineering Research and Design

As part of a cooperative agreement between the Institution of Chemical Engineers (UK) and the Canadian Society for Chemical Engineering, the *table of contents* of each issue of the respective research journals will appear in the other. This journal is available to members of The Canadian Society for Chemical Engineering for $44.00.

Chemical Engineering Research and Design — **Vol. 66, No. 6, November 1988**

Special Topic Issue — Environmental Engineering

Contents

481 Editorial
482 Notes for Authors

Special Papers

483 Desorption of Volaline Electrolytes in a Tray Column (Sour Water Stripping).
G.C. Hoogendoorn, R.D. Abellon, P.J.M. Essens and J.A. Wesselingh

503 Extraction of Thiocyanate Ions from Coal Gasification Effluents: Part I — Ion-Pair Extraction System.
N.K. Thonchk, S.D. Jones, B.G. Reuben and P. Mahi

510 Extraction of Thiocyanate Ions from Coal Gasification Effluents: Part II — Ion-Exchange Extraction System.
N.K. Thonchk, B.G. Reuben and P. Mahi.

518 Anaerobic Fluidized Bed Treatment of a Tannery Wastewater.
S.J. Chen, C.T. Li and W.K. Shieh

524 Predicting the Performance of Ion Exchange Columns.
G..S. Solt, A.W. Nowosielski and P. Feron

531 Shorter Communication
Ozonation and Carbon Adsorption in a Three-Phase Fluidized Bed for Colour Removal from Peat Water.
G. McKay and G. McAleavey

General Papers

537 The Role of Time in Metastable Zone Width Determinations.
O.Sohnel and J.W. Mullin

541 Characteristic Velocity of Drops in a Liquid-Liquid Extraction Pulsed Sieve Plate Column.
A.A. Hussain, T-B. Liang and M.J. Slater

555 Heat Transfer Enhancement in Round Tubes Using Wire Matrix Turbulators: Newtonian and non-Newtonian Liquids.
D.R. Oliver and R.W.J. Aldington.

566 Fifteenth Annual Research Meeting.
E.H. Stitt and P.J. Heggs

569 Correspondence

571 List of Referees

572 Index to Volume 66

Contents of the October 1988 issue of CJChE: page 502